MAX

MFR

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**TPE** 

TWE

TYP

UNO

**VERT** 

VIF

W/O

WPT

WT

WWF

XP(D)

**TRANSV** 

STRUC

SPEC(S)

PROJ

NOM

MASONRY

MAXIMUM

MINIMUM

NOMINAL

NEAR SIDE

ON CENTER

**OPENING** 

OPPOSITE

PAINTED

RADIUS/RADII

ROOF DRAIN

REFER(ENCE)

REQUIRED

S SHAPE

SIMILAR

SCHEDULE

SLAB ON GRADE

SPECIFICATION(S

STAINLESS STEEL

STRUCTUR(E)(AL)

SYMMETR(Y)(ICAL)

TOP AND BOTTOM

TOP OF PILE CAP

TOP OF BEAM ELEVATION

TOP OF DECK ELEVATION

TOP OF JOIST ELEVATION

TOP OF LEDGE ELEVATION

TOP OF PIER ELEVATION

TOP OF SLAB ELEVATION

TOP OF WALL ELEVATION

UNLESS NOTED OTHERWISE

WEIGHT/STRUCTURAL TEE

WELDED WIRE FABRIC

TRANSVERSE

TYPICAL

VERTICAL

W SHAPE

WITHOUT

WIND LOAD

WORKPOINT

EXPOSE(D)

SPECIAL SYMBOLS

| Ø | DIAMETER | ⊥ | PERPENDICULAR

WOOD

VERIFY IN FIELD

VAPOR RETARDER

TEMPERATURE/TEMPORARY

TOP OF FOOTING ELEVATION

TOP OF MASONRY ELEVATION

(DRILLED PIER CAP) ELEVATION

STANDARD

STIFFENER

STEEL

SPECIALLY ROUGHENED

CONSTRUCTION JOINT

NOT TO SCALE

OUTSIDE FACE

NORMAL WEIGHT

MANUFACTURER

NOT IN CONTRACT

NON-SHRINK GROUT

MISCELLANEOUS CHANNEL

MANUFACTURER'S PRINTED

PARTIAL JOINT PENETRATION

POUNDS PER LINEAR FOOT

POUNDS PER SQUARE FOOT

POUNDS PER SQUARE INCH

REINFORC(E)(ED)(ING)(EMENT)

POST TENSION(ED)(ING)

PROJECT(ION)(OR)

INSTALLATION INSTRUCTIONS

**ANCHOR BOLT** 

**ADDITIONAL** 

**ADHESIVE** 

**BRIDGING** 

**ABOVE** 

**ADDL** 

ADH

ADJ

**ADJC** 

AES

ANC

BFE

BOT

**BRDG** 

D&E

DBA

**DET** 

DWG(S)

**DWL** 

**ELEV** 

JBE

JST

DRILL AND EPOXY GROUT

LIGHTWEIGHT

**JOIST** 

JOIST BEARING ELEVATION

PROVIDE A MINIMUM 24 HOUR NOTICE TO THE SPECIAL INSPECTOR PRIOR TO CONSTRUCTION WHICH WOULD RESTRICT INSPECTION OF THE ITEM. A. CONCRETE

- 1. REINFORCING PLACEMENT FOR CONCRETE FOOTINGS (WITH REINFORCING IN TWO DIRECTIONS). WALLS, STRUCTURAL SLABS.
- COLUMNS AND BEAMS. 2. POST-TENSIONING TENDON PLACEMENT FOR CONCRETE SLABS
- AND BEAMS.
- CONCRETE PLACEMENT AND MATERIAL TESTING. 4. STRESSING OF POST-TENSIONING CABLES.
- B. MASONRY
- 1. PLACING OF UNITS. REINFORCEMENT PLACEMENT.
- GROUTING OPERATIONS.
- C. STRUCTURAL STEEL
- WELDING - FIELD WELDED CONNECTIONS
- WELDED SHEAR CONNECTORS/HEADED STUDS - COMPOSITE DECK WELDING
- STEEL ROOF DECK WELDING 2. HIGH STRENGTH BOLTING
- BOLTED CONNECTIONS FOLLOWING INSTALLATION

3. STRUCTURAL STEEL DETAIL COMPLIANCE

#### APPLY UNLESS NOTED OTHERWISE ON STRUCTURAL DRAWINGS OR SPECIFICATIONS. **DESIGN CODE**

2007 MINNESOTA STATE BUILDING CODE (2006 IBC)

#### DESIGN LOADS

OCCUPANCY CATEGORY NATURE OF OCCUPANCY. ..MIXED USE - RETAIL AND RESIDENTIAL

..90 MPH

OCCUPANCY CATEGORY.

FLOOR LIVE LOADS SEE S010 FOR FLOOR LOADING DIAGRAMS

**SNOW LOAD** GROUND SNOW LOAD, Pg. .35 PSF FLAT ROOF SNOW LOAD, Pf. SNOW IMPORTANCE FACTOR. SNOW EXPOSURE FACTOR, Ce...

WIND LOAD BASIC WIND SPEED (3 SECOND GUST).

METHOD 3 - WIND TUNNEL PROCEDURE

WIND IMPORTANCE FACTOR...

THERMAL FACTOR AT BUILDINGS, Ct.

THERMAL FACTOR AT CANOPIES. Ct...

MEAN ROOF HEIGHT. ..274 FT INTERNAL PRESSURE. .±5 PSF DESIGN WIND LOADS DETERMINED PER ASCE 7-05

SEE S020 FOR DESIGN WIND LOAD INFORMATION

F'c=4000 PSI AT 28 DAYS (ALL OTHER CONCRETE)

#### MAIN LATERAL FORCE RESISTING SYSTEM

CONCRETE SHEAR WALLS

### <u>MATERIALS</u>

**CAST-IN-PLACE CONCRETE** F'c=8000 PSI AT 28 DAYS (COLUMNS AND WALLS UP TO LEVEL 10 UNO) F'c=6000 PSI AT 28 DAYS (COLUMNS AND WALLS ABOVE LEVEL 10 UNO) F'c=6000 PSI AT 28 DAYS (SLABS AND BEAMS, UNO)

#### CONCRETE MASONRY

CONCRETE MASONRY UNITS.. ASTM C90 TYPE "N-1" MASONRY GROUT ..F.'c=3000 PSI AT 28 DAYS MASONRY MORTAR. .ASTM C270 (TYPE S UNO) STEEL REINFORCING REINFORCING BARS.. .ASTM A615 (GRADE 60) WELDED BARS AND ANCHORS. .ASTM A706 (GRADE 60) **DEFORMED BAR ANCHORS..** .ASTM A496 **EPOXY-COATED REINFORCING BARS...** ASTM A775 OR ASTM A934 UNBONDED PRESTRESSING STRANDS... .ASTM A416 (Fpu=270 KSI) WELDED WIRE FABRIC. .ASTM A185

STRUCTURAL STEEL

OF 50,000 PSF.

.ASTM A992 (Fy=50 KSI) W SHAPES (AND WT CUT FROM W SHAPES)... PLATES AND SHAPES OTHER THAN W... .ASTM A36 (Fv=36 KSI) RECTANGULAR HSS... .ASTM A500, GRADE C (Fy=50 KSI) ROUND HSS... ASTM A500, GRADE C (Fy=50 KSI) PIPES... ASTM A53, TYPES E OR S, GRADE B (Fy=35 KSI) BOLTS... **ASTM A325/ASTM A490** ANCHOR RODS. ASTM F1554 (Fy=36 KSI) HEADED STUDS/SHEAR CONNECTORS ASTM A108

# **FOUNDATIONS**

FOUNDATION DESIGN PARAMETERS ARE BASED ON RECOMMENDATIONS FROM THE GEOTECHNICAL EXPLORATION REPORT DATED JANUARY 21, 2014 BY BRAUN INTERTEC.

REFER TO THE GEOTECHNICAL REPORT FOR SOIL CLASSIFICATION.

FOOTINGS HAVE BEEN DESIGNED FOR A MAXIMUM NET SOIL BEARING PRESSURE

IF THE SOIL AT THE FOUNDATION OR SLAB-ON-GRADE ELEVATIONS SHOWN IS OF QUESTIONABLE BEARING VALUE, THE ARCHITECT/ENGINEER SHALL BE NOTIFIED AT ONCE FOR RESOLUTION.

ALL FOUNDATIONS SHALL BE CENTERED ON WALLS OR COLUMNS UNO.

WALLS LATERALLY SUPPORTED AT TOP AND BOTTOM RETAINING SOIL HAVE BEEN DESIGNED FOR AN EQUIVALENT FLUID PRESSURE OF 55 POUNDS PER CUBIC

CANTILEVERED WALLS RETAINING SOIL HAVE BEEN DESIGNED FOR AN EQUIVALENT FLUID PRESSURE OF 35 POUNDS PER CUBIC FOOT.

WHERE FILL MATERIAL IS PLACED ON BOTH SIDES OF GRADE BEAMS OR WALLS IT SHALL BE PLACED IN LAYERS ALTERNATELY ON OPPOSITE SIDES TO MAINTAIN LEVELS THAT WILL AVOID DISPLACEMENT OF, OR DAMAGE TO, THE WALLS OR BEAMS.

WHERE FILL MATERIAL IS PLACED ON ONE SIDE OF A WALL (OR GRADE BEAM) THE WALL (OR BEAM) SHALL BE ADEQUATELY SHORED AND BRACED OR THE MATERIAL SHALL NOT BE PLACED UNTIL SUPPORTING FLOOR SLABS, INCLUDING SLABS-ON-GRADE. HAVE BEEN POURED AND SET.

CONTINUOUS FOOTINGS SHALL BE STEPPED AT A SLOPE OF ONE VERTICAL TO TWO HORIZONTAL.

PROTECT IN-PLACE FOUNDATIONS AND SLABS ON GRADE FROM FROST

PENETRATION UNTIL PROJECT COMPLETION.

SLOPE BETWEEN ADJACENT FOOTINGS OR EXCAVATIONS SHALL NOT EXCEED ONE VERTICAL TO TWO HORIZONTAL. STEP FOOTINGS DOWN AS NECESSARY TO MAINTAIN THIS SLOPE

#### STRUCTURAL STEEL

.1 1/2"

**GENERAL STRUCTURAL NOTES** 

ARRANGEMENT AND BENDING OF REINFORCING STEEL SHALL BE IN

ACCORDANCE WITH ACI DETAILING MANUAL, LATEST EDITION.

REINFORCING STEEL SHALL BE NEW DEFORMED BARS

CODE FOR REINFORCED CONCRETE DESIGN AND CONSTRUCTION - ACI 318-05.

CONCRETE COVER TO REINFORCING STEEL, UNLESS NOTED OTHERWISE,

FORMED SURFACES IN CONTACT WITH EARTH OR EXPOSED TO WEATHER:

FORMED SURFACES NOT IN CONTACT WITH EARTH OR EXPOSED TO

NON-CONTINUOUS ENDS OF TOP BARS IN BEAMS AND SLABS SHALL

LENGTHS INDICATED DO NOT INCLUDE HOOKS WHERE THEY OCCUR.

OTHERWISE. LAP WWF WIRE SPACING PLUS 2" (6" MINIMUM).

TERMINATE IN A STANDARD HOOK, UNLESS DETAILED OTHERWISE. BAR

WHERE REINFORCING BARS ARE SHOWN CONTINUOUS, PROVIDE CLASS B

TENSION LAP SPLICES (12" MINIMUM) EXCEPT WHERE NOTED OR DETAILED

DETAIL AND PROVIDE SUITABLE WIRE SPACERS, CHAIRS, TIES, ETC., FOR

SUPPORTING REINFORCING STEEL IN THE PROPER POSITION WHILE

ALL CHAIRS SUPPORTED BY GRADE SHALL INCLUDE SAND PLATES.

SHALL HAVE PLASTIC OR RUBBER TIPS OR BE STAINLESS STEEL.

BAR SUPPORTS WHICH COME IN CONTACT WITH EXPOSED SURFACES

PROVIDE DOWELS OF SAME SIZE AND SPACING AS VERTICAL WALL OR

COLUMN PIER REINFORCING AT THE FOUNDATION, UNLESS NOTED

OTHERWISE. DOWELS SHALL BE TIED IN PLACE PRIOR TO CONCRETE

PROVIDE BENT CORNER BARS TO MATCH AND LAP WITH HORIZONTAL BARS

AT CORNERS AND INTERSECTIONS OF WALLS, BEAMS, AND FOOTINGS.

CONTINUOUS TOP BARS IN WALLS, BEAMS AND GRADE BEAMS SHALL BE

DRAWINGS SHOWING LOCATION OF CONSTRUCTION AND CONTROL JOINTS

AND PLACING SEQUENCE SHALL BE SUBMITTED FOR ENGINEER'S REVIEW

PRIOR TO PREPARATION OF THE REINFORCING STEEL SHOP DRAWINGS.

HORIZONTAL CONSTRUCTION JOINTS ARE NOT PERMITTED IN CONCRETE

VERTICAL CONSTRUCTION JOINTS OR BULKHEADS SHALL BE MADE AT

SIZE OF CONCRETE POURS BETWEEN CONSTRUCTION JOINTS SHALL BE

VENEER JOINTS.

OF 100 FT.

VERIFY LOCATION OF OPENINGS SHOWN THROUGH CONCRETE SLABS OR

WALLS AND COORDINATE ANY ADDITIONAL REQUIRED OPENINGS WITH OTHER

CONCRETE EXPOSED TO FREEZING AND THAWING SHALL CONTAIN 6% (PLUS OR

THICKEN SLABS ON GRADE BELOW NON-BEARING INTERIOR MASONRY WALLS.

ALUMINUM CONDUIT OR PIPING MAY NOT BE EMBEDDED IN ANY CONCRETE.

CALCIUM CHLORIDE IS NOT PERMITTED AS A CONCRETE ADDITIVE

MAXIMUM LENGTH 100 FT WITH INTERMEDIATE.

DO NOT LOCATE WITHIN 5 FT OF A CORNER OR

CONTROL JOINTS AT APPROXIMATELY 30 FT.

COLUMN. COORDINATE LOCATIONS WITH

..3600 SQUARE FT WITH MAXIMUM DIMENSION

OF 60 FT; PLACE IN LANE OR STRIP FASHION

APPROXIMATELY 20 FT OR 15 FT FOR EXPOSED

..10000 SQUARE FT WITH MAXIMUM DIMENSION

WITH INTERMEDIATE CONTROL JOINTS AT

CONCRETE SURFACES. COORDINATE

LOCATIONS WITH FLOOR FINISHES.

MIDSPAN OR POINTS OF MINIMUM SHEAR.

MEMBERS UNLESS SHOWN ON THE DRAWINGS OR APPROVED IN ADVANCE.

SPLICED AT MIDSPAN AND BOTTOM BARS OVER SUPPORTS, UNLESS

CAST-IN-PLACE CONCRETE

**CLEAR COVER REQUIREMENTS:** 

SURFACES CAST AGAINST EARTH.

SHALL BE AS FOLLOWS:

#6 OR LARGER..

#5 OR SMALLER...

WALLS, SLABS, JOISTS.

BEAMS, COLUMNS..

PLACING CONCRETE.

PLACEMENT.

NOTED OTHERWISE.

LIMITED TO:

WALLS..

SLABS ON GRADE...

CONCRETE ON...

MINUS 1.5%) ENTRAINED AIR.

TRADES AND THE ARCHITECT/ENGINEER.

METAL DECK

WEATHER:

AISC 360-05 "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS" AND AISC STEEL CONSTRUCTION MANUAL 13TH EDITION APPLY.

WELDING ELECTRODES SHALL BE 70 KSI.

ALL WELDING AND TESTING OF WELDS SHALL BE IN ACCORDANCE WITH AMERICAN WELDING SOCIETY CODES AND RECOMMENDATIONS.

ALL WELDING SHALL BE BY WELDERS HOLDING CURRENT VALID CERTIFICATES IN THE TYPE OF WELD REQUIRED.

COMPOSITE BEAMS ARE DESIGNED AS UNSHORED UNO.

ALL BOLTED CONNECTIONS IN TRUSSES, MOMENT FRAMES, BRACING, BEAMS WITH AXIAL FORCES. BEAMS BRACING TRUSS CHORDS CHORDS, AND COLLECTORS SHALL BE SLIP CRITICAL USING TYPE "SC"

CONTRACTOR SHALL PROVIDE THE NECESSARY BRACING DURING ERECTION AND UNTIL ALL STEEL IS PLUMB AND SECURED.

FIELD CUTTING OR OTHER FIELD MODIFICATIONS TO STRUCTURAL STEEL SHALL NOT BE MADE WITHOUT SPECIFIC PRIOR WRITTEN APPROVAL OF THE ARCHITECT/ENGINEER.

ALL BEAM COPES MUST BE MADE TO A RADIUS (1/2" MINIMUM).

STRUCTURAL STEEL FRAMING SHALL BE TRUE AND PLUMB BEFORE CONNECTIONS ARE FINALLY BOLTED OR WELDED.

EXTERIOR SLAB EDGE BENT PLATES SHALL CONFORM TO TOLERANCES OF ADJUSTABLE ITEMS PER AISC CODE OF STANDARD PRACTICE

ANCHOR RODS ARE NOT DESIGNED TO SUPPORT ERECTION LOADS, EXCEPT AS REQUIRED BY OSHA 1926 SUBPART R. STEEL FABRICATOR SHALL COMPLY WITH OSHA STANDARDS IN

DETAILING AND FABRICATING STEEL FOR ERECTION.

STEEL DECKING STEEL DECK INSTITUTE SPECIFICATIONS AND RECOMMENDATIONS APPLY

SEE PLANS FOR DECK, FINISH, FASTENER, AND SIDE LAP INFORMATION.

PROVIDE CLOSURE PLATES AND ACCESSORIES AS REQUIRED.

COMPOSITE METAL DECK IS DESIGNED AS UNSHORED, UNO.

FORM DECK SHALL BE ERECTED AND WELDED TO SUPPORTING STEEL AND HAVE SIDE LAPS CONNECTED ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS.

LAP FORM DECK SHEETS ONE-HALF FLUTE AT SIDE LAPS.

#### **MASONRY**

PROVIDE REINFORCING BARS AT LOCATIONS INDICATED ON THE DRAWINGS. LAP 48 BAR DIAMETERS AT SPLICES UNLESS NOTED OTHERWISE.

GROUT CORES WITH MASONRY GROUT IN 5'-0" MAXIMUM LIFTS. GROUT LIFT SHALL TERMINATE 1 1/2" BELOW BED JOINT IN WALL. LIFTS SHALL BE CONSOLIDATED USING MECHANICAL VIBRATION.

PROVIDE BAR POSITIONERS AT OR NEAR TOP AND BOTTOM OF LIFT TO MAINTAIN BAR POSITION WHILE GROUTING. BARS MUST BE IN PLACE PRIOR TO GROUTING. PLACEMENT OF STEEL REINFORCEMENT INTO WET GROUT WILL NOT BE PERMITTED.

PROVIDE (1)-#5 VERTICAL BELOW BEAM AND LINTEL BEARINGS AND GROUT CORE FULL HEIGHT. BEARING DISTANCE SHALL BE A MINIMUM OF 8".

PLACE CONSTRUCTION JOINTS IN MASONRY WALLS SUCH THAT NO STRAIGHT

RUN OF MASONRY EXCEEDS 40'-0", UNLESS NOTED OTHERWISE. CORES CONTAINING VERTICAL REINFORCING SHALL BE GROUTED SOLID WITH

MASONRY GROUT. FILLING CORES WITH MORTAR IS NOT ACCEPTABLE.

PROVIDE BENT CORNER BARS TO MATCH AND LAP WITH HORIZONTAL BARS AT CORNERS AND INTERSECTIONS OF WALLS AND BOND BEAMS.

#### MASONRY STRENGTH NOTES:

F'm = 1500 PSI, EXCEPT WHERE NOTED OTHERWISE ON DRAWINGS.

THE REQUIRED STRENGTH SHALL BE VERIFIED BY THE UNIT STRENGTH METHOD PER IBC 2105.2.2.1. COMPRESSIVE STRENGTH OF MASONRY UNITS SHALL BE AS REQUIRED PER IBC TABLE 2105.2.2.1.2 FOR TYPE 'M' OR 'S'

IF THE MASONRY DOES NOT MEET THE REQUIREMENTS FOR APPLICATION OF THE UNIT STRENGTH METHOD, PRISM TESTING PER IBC 2105.2.2.2 AND ASTM C1314 SHALL BE USED. THE COMPRESSIVE STRENGTH OF THE MASONRY SHALL BE TAKEN AS THE AVERAGE STRENGTH OF THREE **PRISMS** 

### **SUPPLEMENTAL NOTES**

EXAMINE ARCHITECTURAL, MECHANICAL, PLUMBING, AND ELECTRICAL DRAWINGS TO DETERMINE LOCATION AND DIMENSIONS OF CHASES, INSERTS, OPENINGS, SLEEVES, REVEALS, DEPRESSIONS AND OTHER PROJECT REQUIREMENTS NOT SHOWN ON STRUCTURAL DRAWINGS.

BEFORE FABRICATION AND ERECTION OF ANY MATERIALS, FIELD VERIFY ALL EXISTING ELEVATIONS, DIMENSIONS AND CONDITIONS AS SHOWN ON THE DRAWINGS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT/ENGINEER AT ONCE FOR RESOLUTION.

STRUCTURAL MEMBERS ARE DESIGNED FOR "IN PLACE" LOADS. CONTRACTOR IS RESPONSIBLE FOR BRACING, WITHOUT OVERSTRESSING. ALL STRUCTURAL ELEMENTS (AS REQUIRED AT ANY STAGE OF CONSTRUCTION) UNTIL COMPLETION OF THIS PROJECT.

FOLLOW OSHA SAFETY STANDARDS FOR STEEL ERECTION, STEEL JOIST ERECTION AND METAL DECKING ERECTION.

#### POST-TENSIONED CONCRETE

LATEST P.T.I. SPECIFICATION FOR UNBONDED TENDONS APPLIES.

THE POST-TENSIONING SYSTEM SHALL BE UNBONDED, 1/2" DIAMETER LOW RELAXATION MONO-STRAND TENDONS CONFORMING TO ASTM A416. LATEST REVISION, WITH A GUARANTEED MINIMUM ULTIMATE STRENGTH OF 270,000 PSI.

THE REQUIRED POST-TENSIONING FORCES SHOWN ON PLAN ARE MINIMUM EFFECTIVE FORCES FOUND ANYWHERE ALONG THE TENDON AFTER ALL LOSSES. THE NUMBER OF TENDONS SHALL BE DETERMINED BY THE POST-TENSIONING SUPPLIER ON THIS BASIS AND SHALL BE SUBJECT TO

THE APPROVAL OF THE STRUCTURAL ENGINEER. THE POST-TENSIONED SYSTEM FOR PARKING LEVELS SHALL BE A FULLY WATER-TIGHT ENCAPSULATED SYSTEM WITH A MINIMUM SHEATHING

THICKNESS OF 0.040 INCHES. TENDONS ARE TO BE PLACED IN SMOOTH PARABOLIC CURVES. HIGH AND LOW POINTS CORRESPOND TO SUPPORT CENTERLINE AND MIDSPAN RESPECTIVELY, UNLESS OTHERWISE NOTED. ALL DIMENSIONS LOCATING

TENDON PROFILE REFER TO THE CENTER OF THE TENDONS FROM THE

TENDON SUPPORT BARS SHALL BE #4 BARS. MAXIMUM SUPPORT OR CHAIR SPACING SHALL BE 4'-0".

BOTTOM OF THE MEMBER.

MINIMUM COVER TO ANCHORS SHALL BE 1 1/2" AT SLAB EDGES AND 2" AT BEAM ENDS.

ALL DEAD-END AND STRESSING END ANCHORS (OR CENTER OF GRAVITY OF THE ANCHOR GROUP) SHALL BE LOCATED AT THE CENTER OF

GRAVITY OF THE MEMBER, UNLESS NOTED OTHERWISE.

POST-TENSIONING SUPPLIER SHALL COORDINATE CONSTRUCTION JOINT LOCATIONS WITH THE CONTRACTOR SUCH THAT ONE-ENDED PULLS DO

NOT EXCEED 125 FT AND TWO-ENDED PULLS 200 FT. ALL INSERTS, ANCHORS, AND SLEEVES FOR ARCHITECTURAL,

MECHANICAL, AND ELECTRICAL WORK SHALL BE CAST IN PLACE

THE STRESSING OF THE SLAB TENDONS MAY COMMENCE WHEN CONCRETE HAS OBTAINED A COMPRESSIVE STRENGTH OF 3000 PSI.

CORING OR DRILLING OF SLABS WILL NOT BE PERMITTED WITHOUT THE PRIOR APPROVAL OF THE STRUCTURAL ENGINEER. NO POWER DRIVEN FASTENERS LONGER THAN 3/4" MAY BE USED.

DRY PACK ALL POST-TENSIONING POCKETS WITH NON-SHRINK GROUT AFTER ACCEPTANCE AND APPROVAL OF STRESSING RECORDS.

SLAB TENDONS MAY BE BUNDLED IN GROUPS OF FOUR MAXIMUM.

WHERE CONFLICT OCCURS BETWEEN REQUIRED LOCATION OF POST-TENSIONING TENDONS AND BONDED STEEL, LOCATION OF POST-TENSIONING TENDONS SHALL HAVE PRIORITY.

#### **SLEEVE AND OPENING COORDINATION**

WHEREVER FEASIBLE.

OPENINGS GREATER THAN 12" IN ANY DIMENSION ARE SHOWN ON STRUCTURAL DRAWINGS. VERIFY LOCATION OF OPENINGS WITH ASSOCIATED TRADES. COORDINATE REVISIONS TO OPENING LOCATIONS AND SIZES WITH ARCHITECT/ENGINEER

SLEEVES AND OPENINGS FOR ARCHITECTURAL, MECHANICAL, PLUMBING, AND ELECTRICAL ITEMS LESS THAN 12" IN ALL DIRECTIONS ARE NOT SHOWN ON THE STRUCTURAL FRAMING PLANS. EXAMINE ARCHITECTURAL, MECHANICAL, PLUMBING, AND ELECTRICAL DRAWINGS TO DETERMINE SIZE AND LOCATION OF REQUIRED SLEEVES.

GENERAL CONTRACTOR TO PROVIDE SLEEVE LAYOUT DRAWINGS FOR ENGINEER'S REVIEW IN CONJUNCTION WITH REINFORCING BAR SHOP DRAWINGS FOR ELEVATED SLABS. ELEVATED SLAB REINFORCING BAR SHOP DRAWINGS WILL NOT BE REVIEWED OR APPROVED UNLESS ACCOMPANIED BY SLEEVE LAYOUT DRAWINGS.

SLEEVE LAYOUT DRAWINGS SHALL SHOW OUTSIDE SLEEVE DIAMETER AND DIMENSIONED LOCATIONS FROM GRIDS IN TWO DIRECTIONS FOR ALL SLEEVES PLACED WITHIN BEAMS AND JOISTS. SLEEVES PLACED IN 5 INCH THICK AND THINNER SLABS NEED ONLY BE SHOWN GRAPHICALLY WITH THE SLEEVE DIAMETER AND DO NOT NEED TO BE DIMENSIONED FROM GRIDS.

THE SLABS AND BEAMS ARE POST-TENSIONED CONCRETE WITH HIGH-STRENGTH TENSIONED CABLES. CABLES ARE EASILY DAMAGED BY DRILLING OR CUTTING INTO THE SLAB. NO NAILING, DRILLING, CUTTING, CHIPPING OR OTHER DISRUPTION TO THE STRUCTURE IS ALLOWED WITHOUT PRIOR WRITTEN APPROVAL BY THE STRUCTURAL ENGINEER OF RECORD. ALL SUPPORT FOR EQUIPMENT PIPING, CONDUITS, DUCTS, ETC. MUST BE PROVIDED USING CAST-IN INSERTS OR EMBEDED ATTACHMENT PLATES. ALL HOLES THROUGH STRUCTURE MUST BE CREATED WITH CAST-IN SLEEVES. COORDINATE ALL EMBEDDED ITEMS WITH THE CONSTRUCTION MANAGER PRIOR TO CONCRETE BEING CAST. DRILLING OR NAILING UP TO 3/4" DEPTH IS ALLOWED AS LONG AS DEPTHS ARE CONTROLLED BY MECHANICAL LIMITING DEVICES UNDER CONTROL OF THE CONSTRUCTION MANAGER.

202 1st Avenue SW Rochester, Minnesota 55902

Telephone 507.281.8600



525 South 8th Street Minneapolis, Minnesota 55404 Telephone 612.332.7281

#### MECHANICAL/

PLUMBING ENGINEER

METROPOLITAN MECHANICAL CONTRACTORS, INC 7450 FLYING CLOUD DRIVE EDEN PRAIRIE, MINNESOTA TELEPHONE (952) 941-7010

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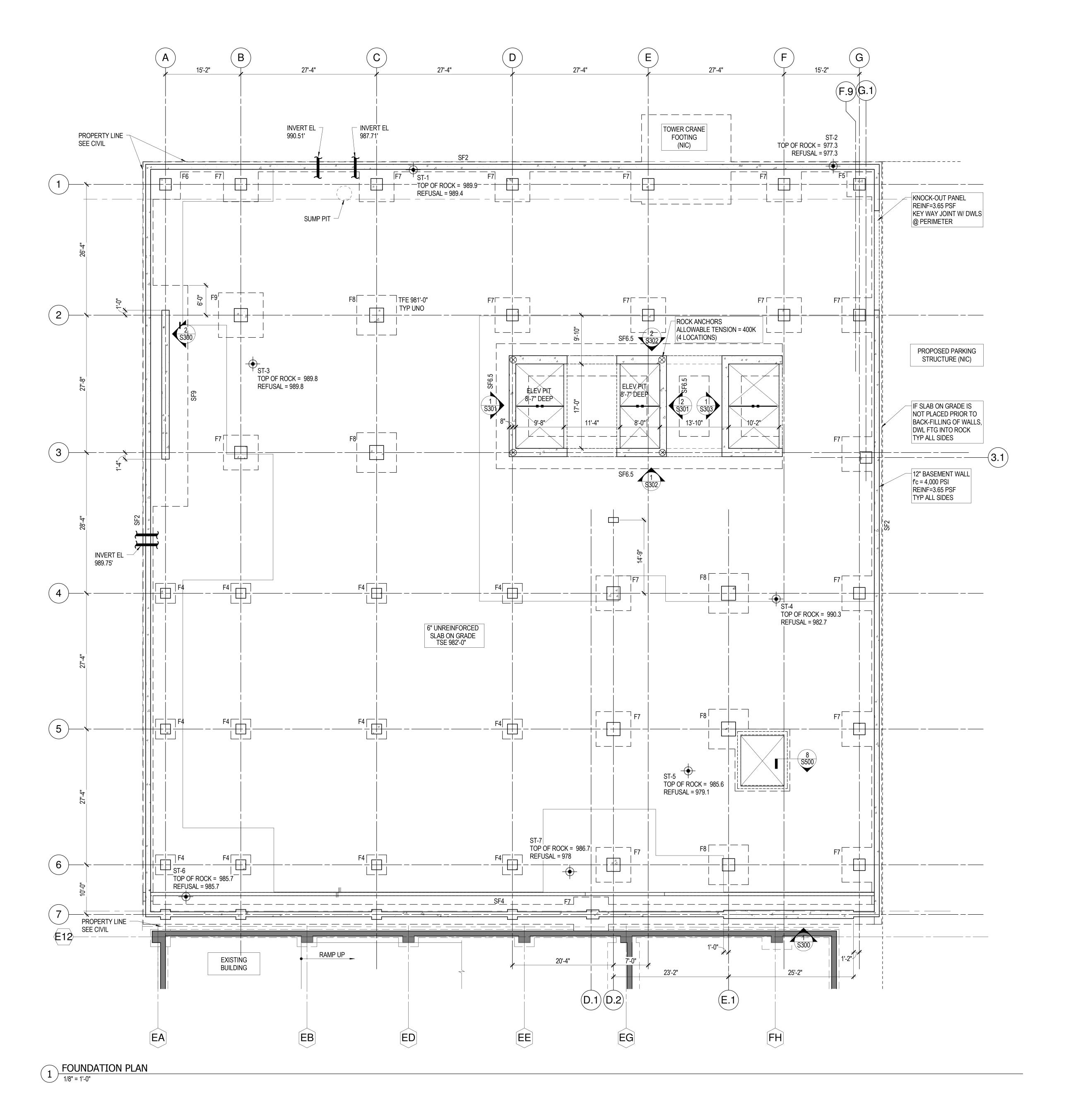
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**STRUCTURAL NOTES AND ABBREVIATIONS** 

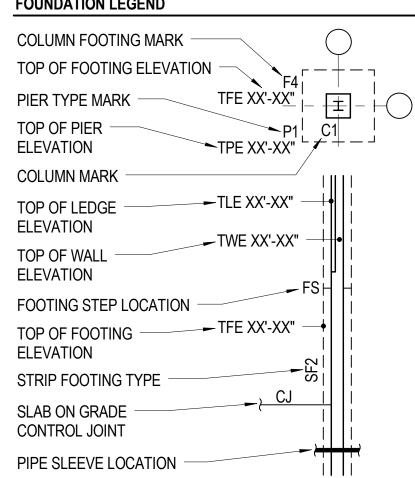
**GENERAL** 

DATE: DECEMBER 19, 2014

**SCHEMATIC DESIGN** 



FOUNDATION LEGEND







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525 South 8th Street
Minneapolis, Minnesota 55404

Telephone 612.332.7281

MECHANICAL/ PLUMBING ENGINEER

METROPOLITAN MECHANICAL CONTRACTORS, INC 7450 FLYING CLOUD DRIVE EDEN PRAIRIE, MINNESOTA TELEPHONE (952) 941-7010

FOOTING SCHEDULE						
TYPE	WIDTH	LENGTH	DEPTH	REINFORCING		
SF2	2'-0"	CONT	1'-6"	(2) #5 CONTINUOUS		
SF4	4'-0"	CONT	2'-6"	6.75 PSF		
SF6.5	6'-6"	CONT	4'-0"	20 PSF		
SF9	9'-0"	CONT	5'-6"	12.5 PSF		
F4	4'-0"	4'-0"	2'-0"	(5) #8 EW BOT		
F5	5'-0"	5'-0"	2'-6"	(6) #9 EW		
F6	6'-0"	6'-0"	3'-0"	(7) #10 EW BOT		
F7	7'-0"	7'-0"	3'-6"	(9) #10 EW BOT		
F8	8'-0"	8'-0"	3'-6"	(8) #11 EW BOT		
F9	9'-0"	9'-0"	4'-0"	(11) #11 EW BOT		
NOTES:						

PROVIDE 90° HOOKS EA END

CONCRETE WALL SCHEDULE						
MARK	THICKNESS	REINFORCING	REMARK			
W8	8"	#5 AT 16" OC EW CENTERED				
W12	12"					

#### FOUNDATION ELEVATION NOTES

- TOP OF FOOTING ELEVATIONS INDICATED ON PLAN REPRESENT THE HIGHEST POTENTIAL FOOTING ELEVATION.
- FOOTINGS MUST BEAR ON BEDROCK CAPABLE OF SUPPORTING 50,000
   PSF ALLOWABLE BEARING CAPACITY. DROP FOOTINGS AS REQUIRED TO ACHIEVE THIS.
- BORING LOCATIONS AND ROCK ELEVATIONS FROM GEOTECHNICAL EXPLORATION HAVE BEEN IDENTIFIED ON PLAN FOR REFERENCE ONLY. REFER TO GEOTECHNICAL REPORT FOR ADDITIONAL INFO.

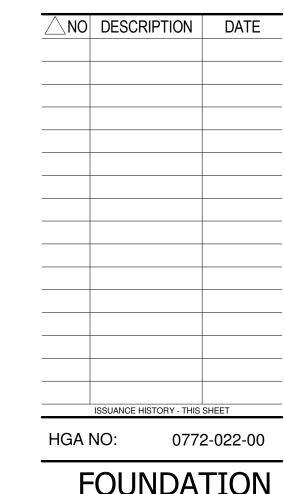
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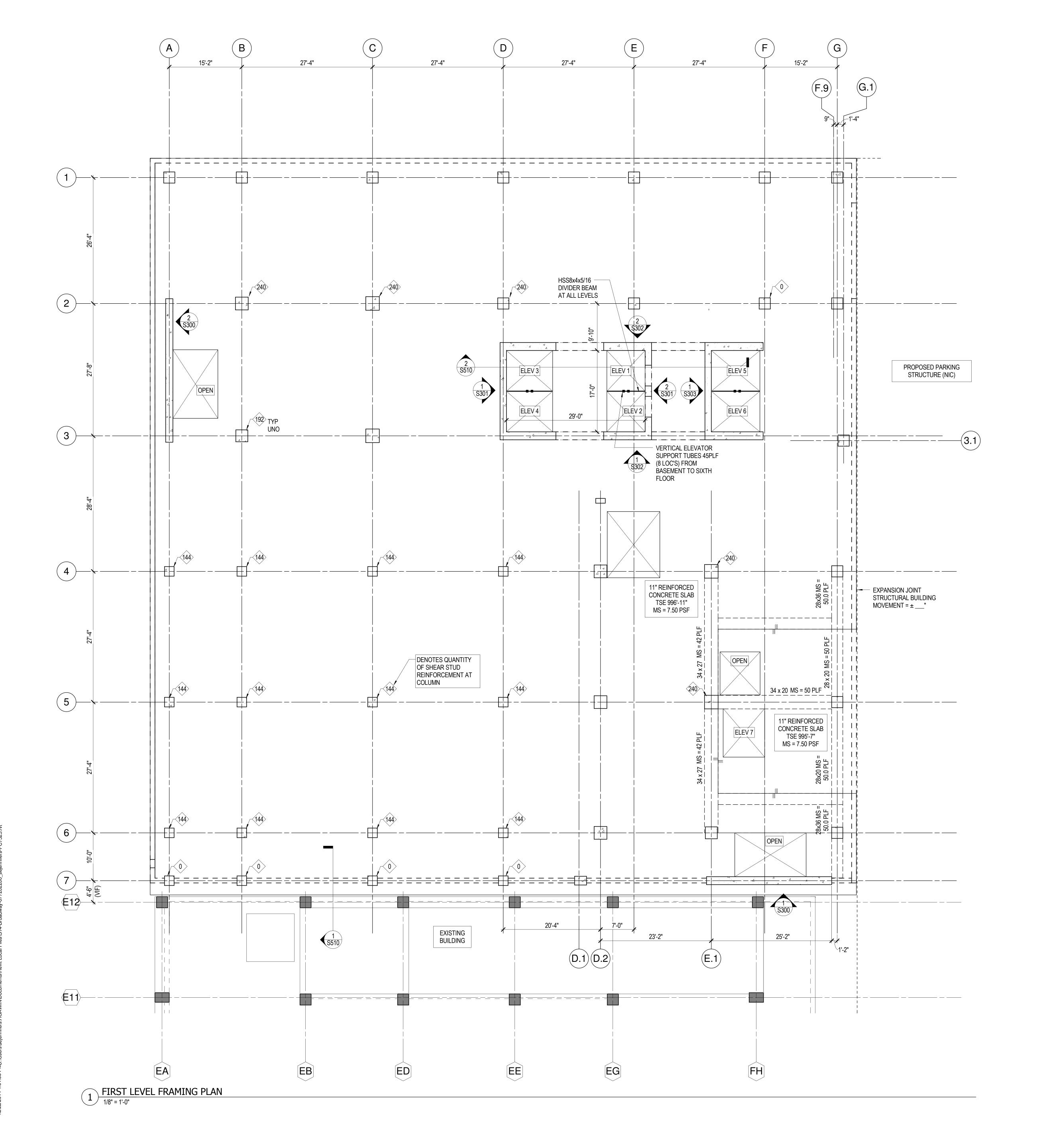
NOTFOR



FOUNDATION PLAN

DATE: DECEMBER 19, 2014





CONCRETE FRAMING PLAN NOTES

- 1. SEE SHEET S001 FOR GENERAL STRUCTURAL NOTES AND ABBREVIATIONS.
- 2. SEE S400 SERIES FOR CONCRETE COLUMN SCHEDULES AND S410 FOR CONCRETE BEAM SCHEDULE.
- 3. SEE S520 SERIES FOR TYPICAL CONCRETE DETAILS NOT EXPLICITLY REFERENCED ON PLAN. 4. SEE S600 FOR TYPICAL MASONRY DETAILS NOT EXPLICITLY REFERENCED ON PLAN.
- 5. SEE S700 SERIES FOR TYPICAL STEEL DETAILS NOT EXPLICITLY REFERENCED ON PLAN. 6. SEE 1/S720 FOR COMPOSITE SLAB/ STEEL DECK SCHEDULE. SEE S720 SERIES FOR STEEL DECK/ COMPOSITE
- SLAB DETAILS NOT EXPLICITLY REFERENCED ON PLAN.

8. COORDINATE LOCATIONS OF ALL MECHANICAL/ELECTRICAL/PLUMBING OPENINGS AND SLEEVES WITH

- 7. SEE S300 SERIES FOR CONCRETE WALL ELEVATIONS AND OPENINGS.
- MECHANICAL/ELECTRICAL/PLUMBING CONTRACTORS. SLEEVES AND OPENINGS WITH DIMENSIONS LESS THAN 6" ARE NOT SHOWN ON THE STRUCTURAL PLANS. 9. NOTIFY STRUCTURAL ENGINEER IF ANY OPENINGS DIMENSIONED ON PLAN OR ELEVATIONS REQUIRE RESIZING
- OR RELOCATION TO ACCOMMODATE OTHER TRADES.
- 10. SLEEVES THROUGH STRUCTURAL BEAMS ARE NOT PERMITTED UNLESS EXPLICITLY SHOWN ON STRUCTURAL
- 11. VERTICAL COLUMN REINFORCEMENT TO BE LOCATED USING A TEMPLATE TO ENSURE THAT POST-TENSIONING TENDONS AND MILD STEEL REINFORCEMENT IN BEAMS WILL PASS UNINTERRUPTED THROUGH COLUMNS.

12. AT SLABS REINFORCED WITH HIGH-STRENGTH TENSIONED CABLES, DO NOT CUT OR DRILL DEEPER THAN 3/4"

- UNLESS EXPLICITLY SHOWN ON STRUCTURAL DRAWINGS OR AUTHORIZED IN WRITING BY STRUCTURAL
- 13. POST-TENSIONED CONCRETE SLABS SHALL NOT BE CONNECTED TO CONCRETE SHEAR WALLS UNTIL 60 DAYS AFTER STRESSING SLAB.
- 14. PROVIDE THE FOLLWING POST-TENSIONED TENDON CGS UNO ON PLAN:
- AT GRIDS/COLUMN LINES: 1 1/4" BELOW TOP OF SLAB AT MIDSPAN BETWEEN COLUMNS: 1 1/4" ABOVE BOTTOM OF SLAB
- WHERE CGS IS SHOWN ON PLAN, SEE \_/\_\_\_ FOR KEY

AT ACHORAGES: MID-HEIGHT OF SLAB



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MECHANICAL/ PLUMBING ENGINEER

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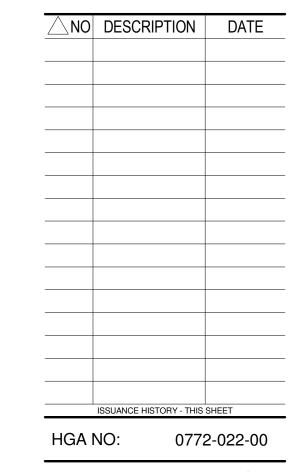
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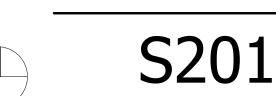
TITAN DEVELOPMENT **AND INVESTMENTS** 221 1st AVENUE SW, SUITE 300 ROCHESTER, MN 55902

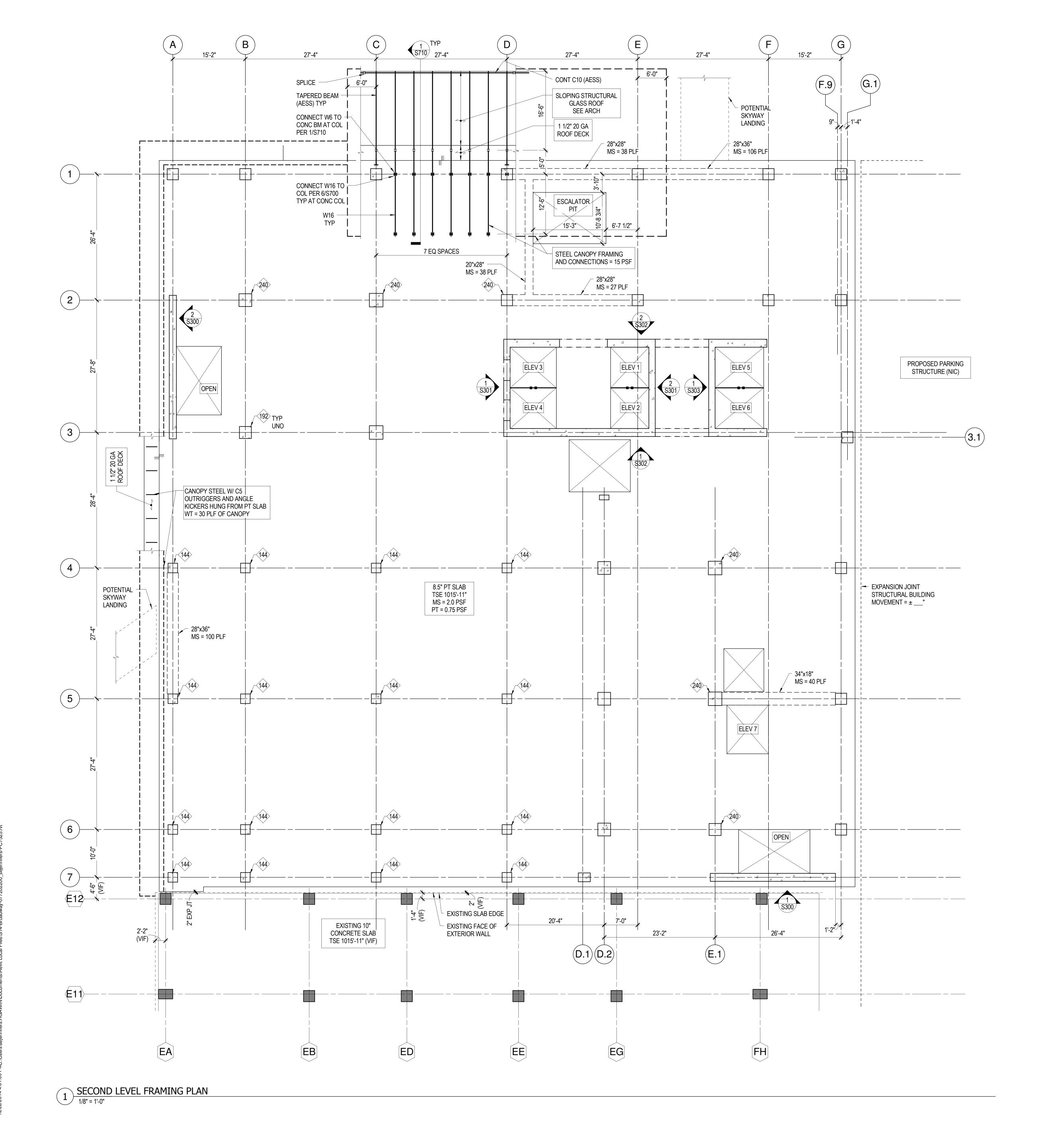




FIRST (GROUND) LEVEL FRAMING PLAN

DATE: DECEMBER 19, 2014





POST TENSIONING AND MILD STEEL LEGEND

EFFECTIVE POST TENSION FORCE IN STRIP BEFORE ADDED TENDONS STRESSING END XXX/YYY K BEAM DESIGNATION SEE SCHEDULE - TOTAL EFFECTIVE POST TENSION MILD STEEL REINFORCEMENT MARK FORCE IN STRIP AFTER ADDED **TENDONS** DISTANCE FROM BOTTOM OF SLAB TO CENTER OF TENDON TOP MILD STEEL - BOTTOM MILD STEEL POST TENSION TENDON C/o/C SPACING CONSTRUCTION JOINT ∴ BAR SIZE INTERMEDIATE ANCHOR I世 ← EPOXY COATING MARK QUANTITY POST TENSIONED SHEAR REINFORCEMENT CONCRETE BEAM MARK, SEE 8-10/S521 ADDITIONAL POST TENSION TENDONS, SEE 3/S520 DEAD OR FIXED ANCHOR END POST TENSION STRIP BOUNDARY DISTRIBUTE TENDONS UNIFORMLY BETWEEN BOUNDARIES. SEE 11/S520 FOR EXAMPLE OF

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#### CONCRETE FRAMING PLAN NOTES

DISTRIBUTED POST TENSION LAYOUT

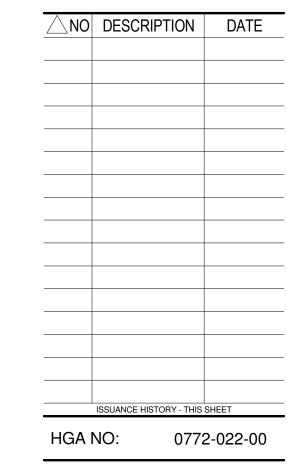
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- 12. AT SLABS REINFORCED WITH HIGH-STRENGTH TENSIONED CABLES, DO NOT CUT OR DRILL DEEPER THAN 3/4" UNLESS EXPLICITLY SHOWN ON STRUCTURAL DRAWINGS OR AUTHORIZED IN WRITING BY STRUCTURAL
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- WHERE CGS IS SHOWN ON PLAN, SEE \_/\_\_\_ FOR KEY

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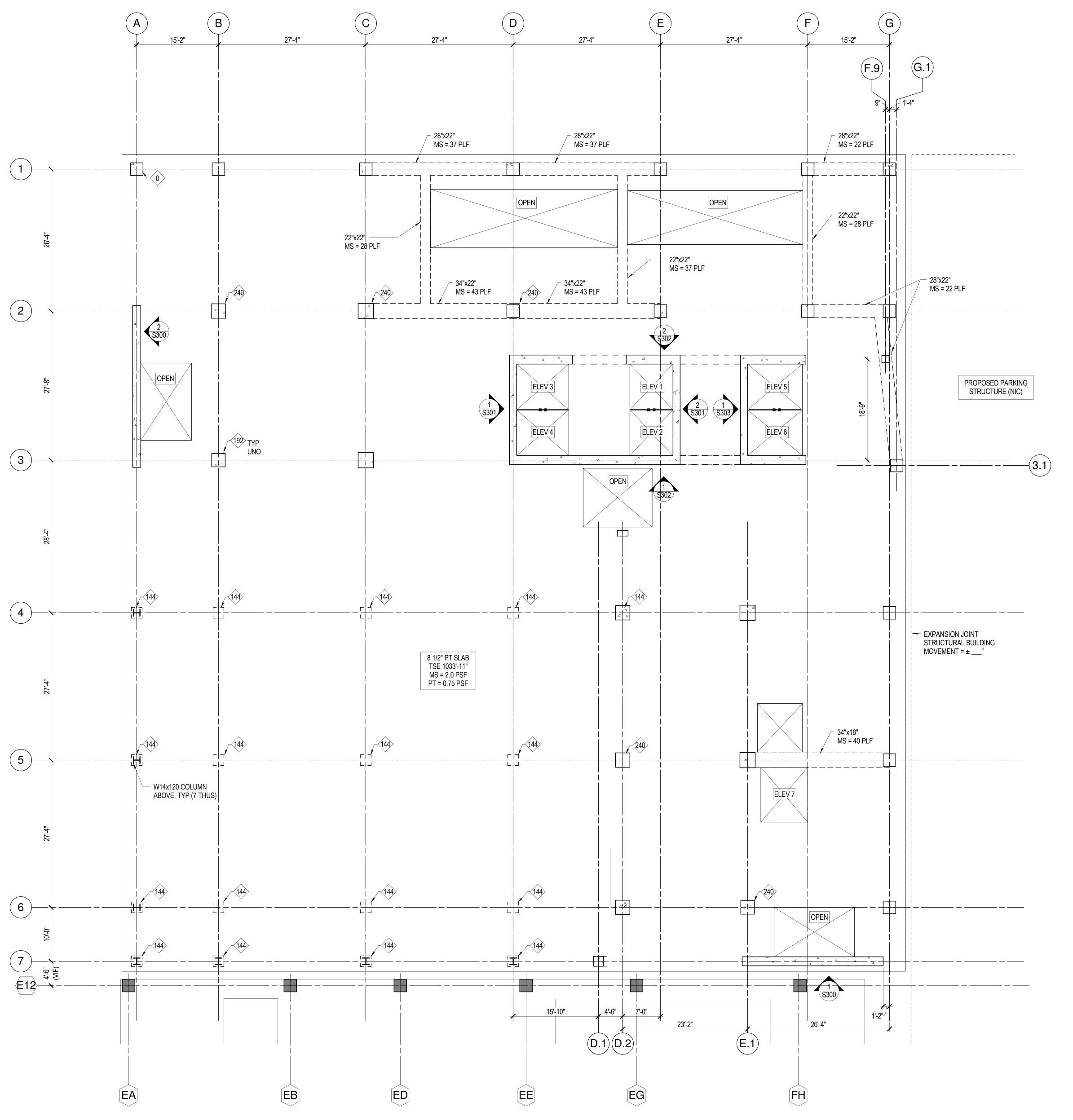
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SECOND LEVEL FRAMING PLAN

DATE: DECEMBER 19, 2014 SCHEMATIC DESIGN





1 03 - THIRD LEVEL FRAMING PLAN
1/8" = 1'-0"

**SD PRICING NOTES:** 

1. POST-TENSIONING AND MILD (NON-PRESTRESSED) STEEL
REINFORCEMENT QUANTITIES FOR PRICING PURPOSES ARE SHOWN ON
PLAN

2. SLAB QUANTITIES ARE PROVIDED IN POUNDS PER SQUARE FOOT OF SLAB AREA. BEAM QUANTITIES ARE PROVIDED IN POUNDS PER LINEAR FOOT OF BEAM LENGTH.

PT = POST-TENSIONED REINFORCING
MS = MILD (NON-PRESTRESSED) STEEL REINFORCEMENT

3. PT TENDONS AND NON-PRESTRESSED REINFORCING SHOWN ON PLAN ARE TYPICAL CONFIGURATIONS INDICATING PLACEMENT AND STRESSING REQUIREMENTS, ACTUAL CONFIGURATIONS WILL VARY.

4. REINFORCEMENT QUANTITIES INCLUDE ALL PRIMARY REINFORCEMENT AND SUPPLEMENTAL REINFORING INCLUDING HAIRPINS, BACKUP BARS, AND OPENING TRIM BARS. SUPPORT BARS ARE NOT INCLUDED.

5. SEE S520 SEREIS FOR TYPICAL CONCRETE DETAILS INDICATING ANTICIPATED CONFIGURATION AND COMPLEXITY OF TENDON AND REBAR PLACEMENT.





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THIRD LEVEL FRAMING PLAN

DATE: DECEMBER 19, 2014



#### **SD PRICING NOTES:**

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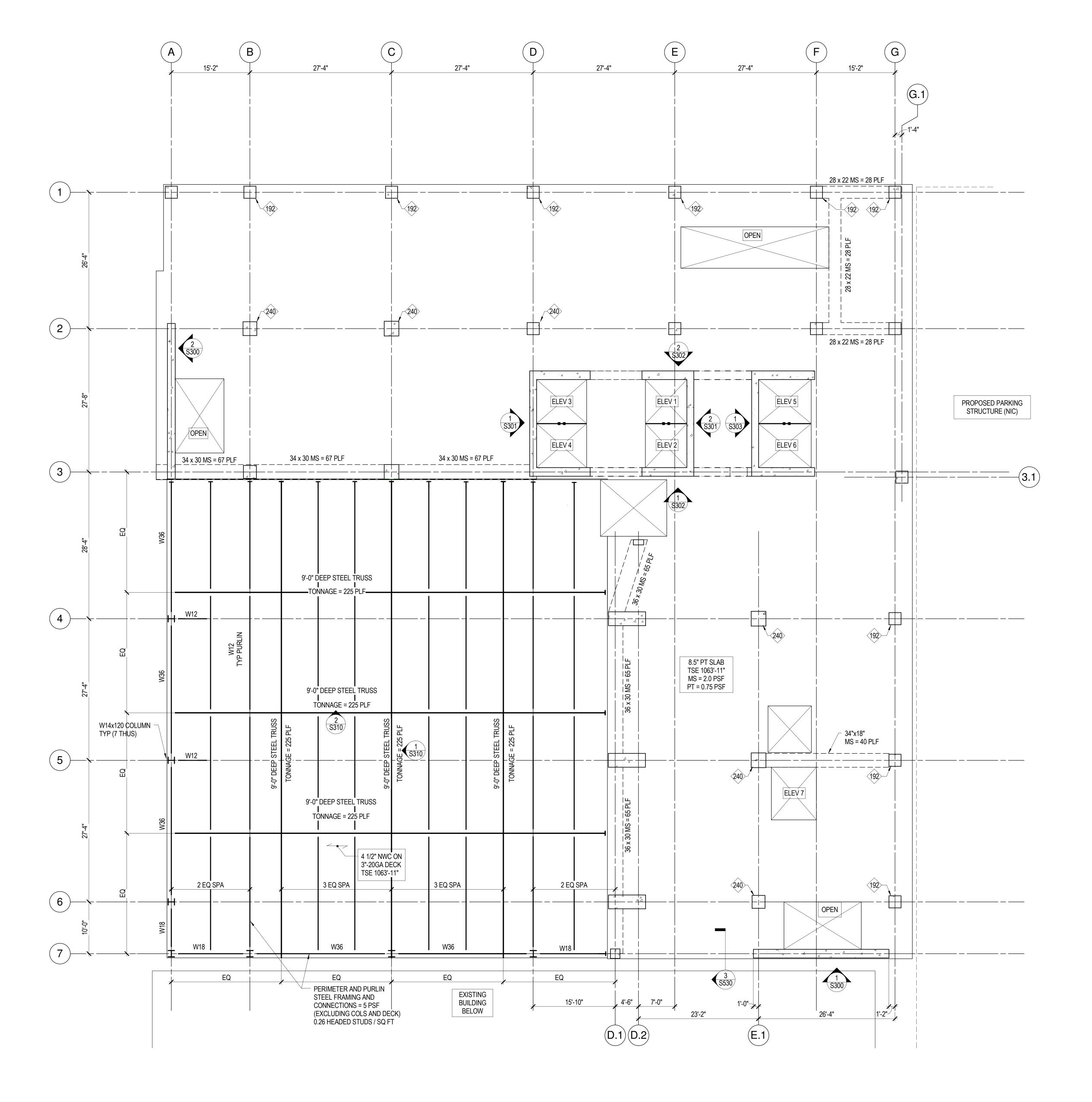
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THIRD LEVEL MEZZANINE FRAMING PLAN

DATE: DECEMBER 19, 2014





1 FOURTH LEVEL FRAMING PLAN
1/8" = 1'-0"

SD PRICING NOTES:

1. POST-TENSIONING AND MILD (NON-PRESTRESSED) STEEL REINFORCEMENT QUANTITIES FOR PRICING PURPOSES ARE SHOWN ON PLAN.

2. SLAB QUANTITIES ARE PROVIDED IN POUNDS PER SQUARE FOOT OF SLAB AREA. BEAM QUANTITIES ARE PROVIDED IN POUNDS PER LINEAR FOOT OF BEAM LENGTH.

PT = POST-TENSIONED REINFORCING
MS = MILD (NON-PRESTRESSED) STEEL REINFORCEMENT

3. PT TENDONS AND NON-PRESTRESSED REINFORCING SHOWN ON PLAN ARE TYPICAL CONFIGURATIONS INDICATING PLACEMENT AND STRESSING REQUIREMENTS, ACTUAL CONFIGURATIONS WILL VARY.

4. REINFORCEMENT QUANTITIES INCLUDE ALL PRIMARY REINFORCEMENT AND SUPPLEMENTAL REINFORING INCLUDING HAIRPINS, BACKUP BARS, AND OPENING TRIM BARS. SUPPORT BARS ARE NOT INCLUDED.

5. SEE S520 SEREIS FOR TYPICAL CONCRETE DETAILS INDICATING ANTICIPATED CONFIGURATION AND COMPLEXITY OF TENDON AND REBAR PLACEMENT.

#### **SD STEEL PRICING NOTES:**

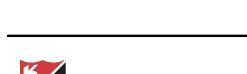
- 1. STEEL TRUSS TONNAGES SHOWN ON PLAN INCLUDE A 20% ALLOWANCE
- FOR TRUSS CONNECTIONS AND STEEL TRUSS BRIDGING.

  2. FRAMING PLANS SHOW PRIMARY STEEL ONLY AND DO NOT INCLUDE SECONDARY STEEL SUCH AS KICKERS, EXTERIOR WALL SUPPORT FRAMING, SLAB EDGE BENT PLATES AND OTHER MISCELLANEOUS STEEL

ITEMS. PROVIDE SUFFICIENT ALLOWANCES FOR THESE ITEMS.

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NOT FOR NOT FOR ONSTRUCTION



FOURTH LEVEL FRAMING PLAN

DATE: DECEMBER 19, 2014



1 04.5 - MEZZANINE 1/8" = 1'-0"

#### **SD PRICING NOTES:**

1. POST-TENSIONING AND MILD (NON-PRESTRESSED) STEEL
REINFORCEMENT QUANTITIES FOR PRICING PURPOSES ARE SHOWN ON
PLAN

2. SLAB QUANTITIES ARE PROVIDED IN POUNDS PER SQUARE FOOT OF SLAB AREA. BEAM QUANTITIES ARE PROVIDED IN POUNDS PER LINEAR FOOT OF BEAM LENGTH.

PT = POST-TENSIONED REINFORCING MS = MILD (NON-PRESTRESSED) STEEL REINFORCEMENT

3. PT TENDONS AND NON-PRESTRESSED REINFORCING SHOWN ON PLAN ARE TYPICAL CONFIGURATIONS INDICATING PLACEMENT AND STRESSING REQUIREMENTS, ACTUAL CONFIGURATIONS WILL VARY.

4. REINFORCEMENT QUANTITIES INCLUDE ALL PRIMARY REINFORCEMENT AND SUPPLEMENTAL REINFORING INCLUDING HAIRPINS, BACKUP BARS, AND OPENING TRIM BARS. SUPPORT BARS ARE NOT INCLUDED.

5. SEE S520 SEREIS FOR TYPICAL CONCRETE DETAILS INDICATING ANTICIPATED CONFIGURATION AND COMPLEXITY OF TENDON AND REBAR PLACEMENT.



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FOURTH LEVEL MEZZANINE FRAMING PLAN

DATE: DECEMBER 19, 2014



1 FIFTH LEVEL FRAMING PLAN
1/8" = 1'-0"

(E.1)

#### **SD PRICING NOTES:**

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5. SEE S520 SEREIS FOR TYPICAL CONCRETE DETAILS INDICATING ANTICIPATED CONFIGURATION AND COMPLEXITY OF TENDON AND REBAR PLACEMENT.

#### **SD STEEL PRICING NOTES:**

27'-4"

TSE 1088'-11"

1. STEEL TRUSS TONNAGES SHOWN ON PLAN INCLUDE A 20% ALLOWANCE FOR TRUSS CONNECTIONS AND STEEL TRUSS BRIDGING. 2. FRAMING PLANS SHOW PRIMARY STEEL ONLY AND DO NOT INCLUDE

SECONDARY STEEL SUCH AS KICKERS, EXTERIOR WALL SUPPORT FRAMING, SLAB EDGE BENT PLATES AND OTHER MISCELLANEOUS STEEL ITEMS. PROVIDE SUFFICIENT ALLOWANCES FOR THESE ITEMS.

20" DEEP x 7" WIDE CONC

24 1/2" TOTAL THICKNESS

JOISTS AT 17"OC W/ 4 1/2" THICK SLAB

MS = 7.0 PSF

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PLUMBING ENGINEER

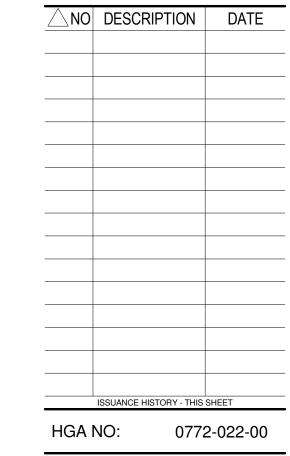
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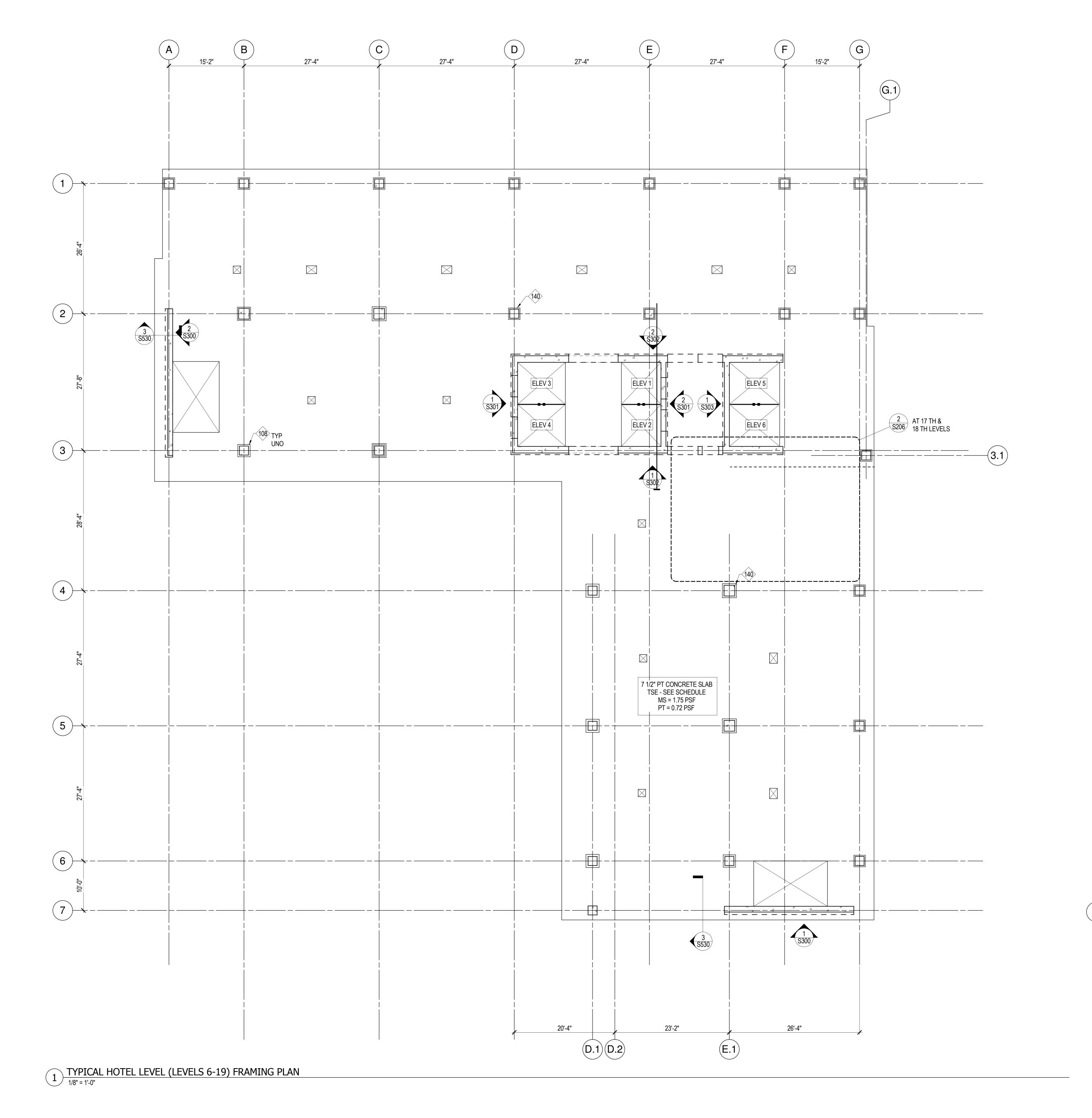
FIFTH LEVEL FRAMING PLAN

PARTIAL PLAN AT POOL AREA

1/8" = 1'-0"

DATE: DECEMBER 19, 2014





SLAB ELEVATI	SLAB ELEVATION SCHEDUL		
LEVEL	TSE		
SIX	1109'-11"		
SEVEN	1119'-7"		
EIGHT	1129'-3"		
NINE	1138'-11"		
TEN	1148'-7"		
ELEVEN	1158'-3"		
TWELVE	1167'-11"		
FOURTEEN	1177'-7"		
FIFTEEN	1187'-3"		
SIXTEEN	1196'-11"		
SEVENTEEN	1206'-7"		
EIGHTEEN	1216'-3"		
NINETEEN	1225'-11"		

NOTE: LEVEL 13 HAS BEEN OMITTED FROM BUILDING LEVEL NUMBERING SEQUENCE

#### **SD PRICING NOTES:**

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7(3.1)

PARTIAL PLAN AT 17TH AND 18TH LEVEL

1/8" = 1'-0"

5. SEE S520 SEREIS FOR TYPICAL CONCRETE DETAILS INDICATING ANTICIPATED CONFIGURATION AND COMPLEXITY OF TENDON AND REBAR PLACEMENT.





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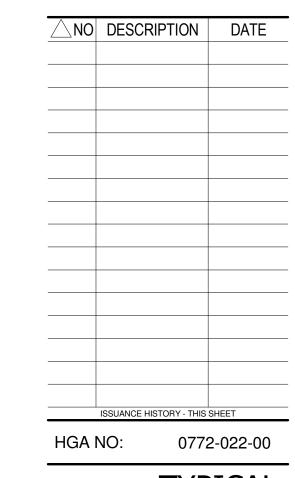
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NOTFORTON

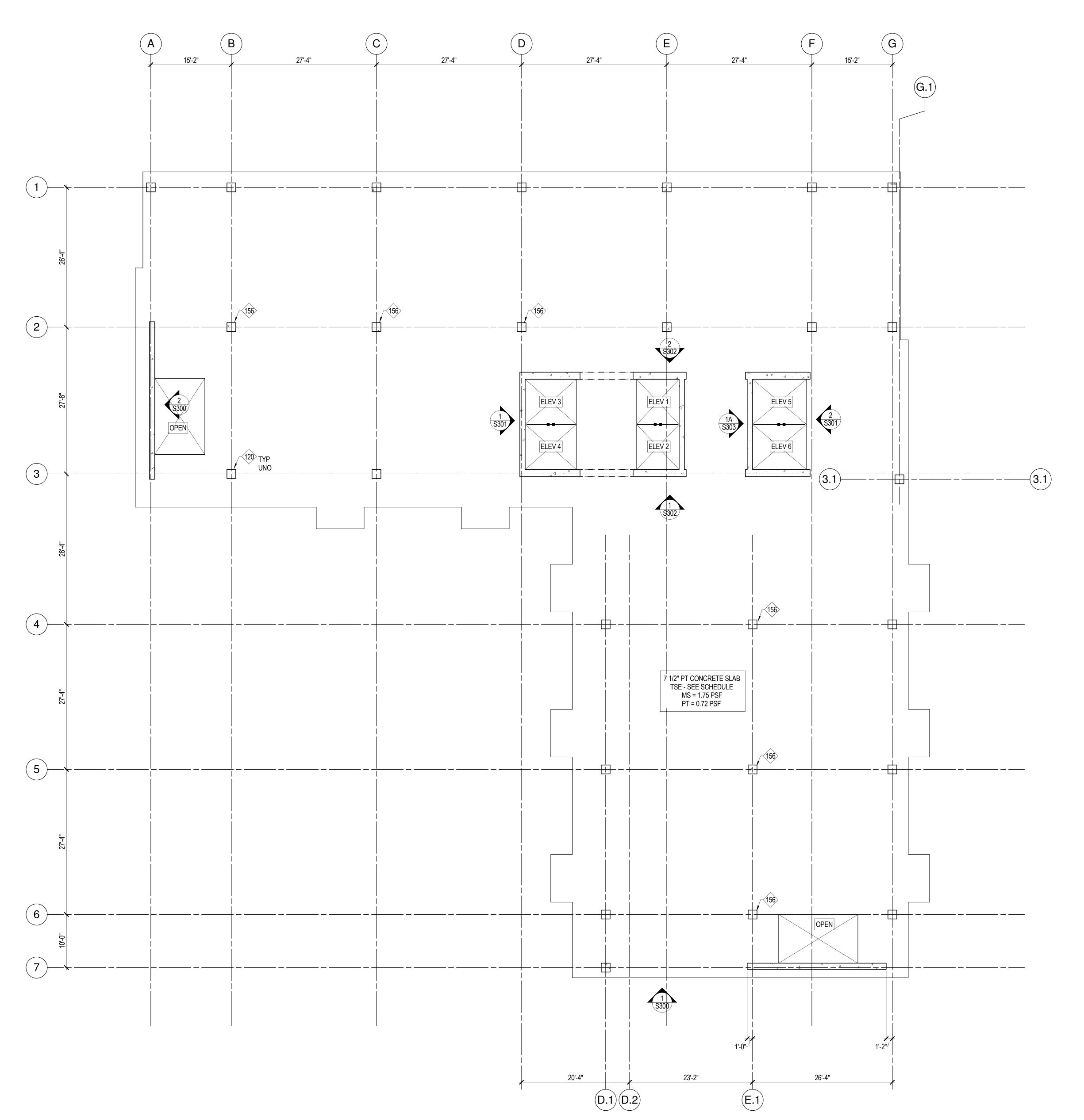


TYPICAL HOTEL LEVEL (LEVELS 6-19) FRAMING PLAN

DATE: DECEMBER 19, 2014

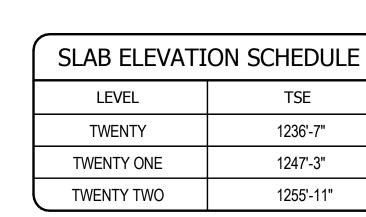
SCHEMATIC DESIGN





TYPICAL APARTMENT LEVEL (LEVELS 20-22ND) FRAMING PLAN

1/8" = 1'-0"



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SD PRICING NOTES:

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2. SLAB QUANTITIES ARE PROVIDED IN POUNDS PER SQUARE FOOT OF SLAB AREA. BEAM QUANTITIES ARE PROVIDED IN POUNDS PER LINEAR FOOT OF BEAM LENGTH.

PT = POST-TENSIONED REINFORCING MS = MILD (NON-PRESTRESSED) STEEL REINFORCEMENT

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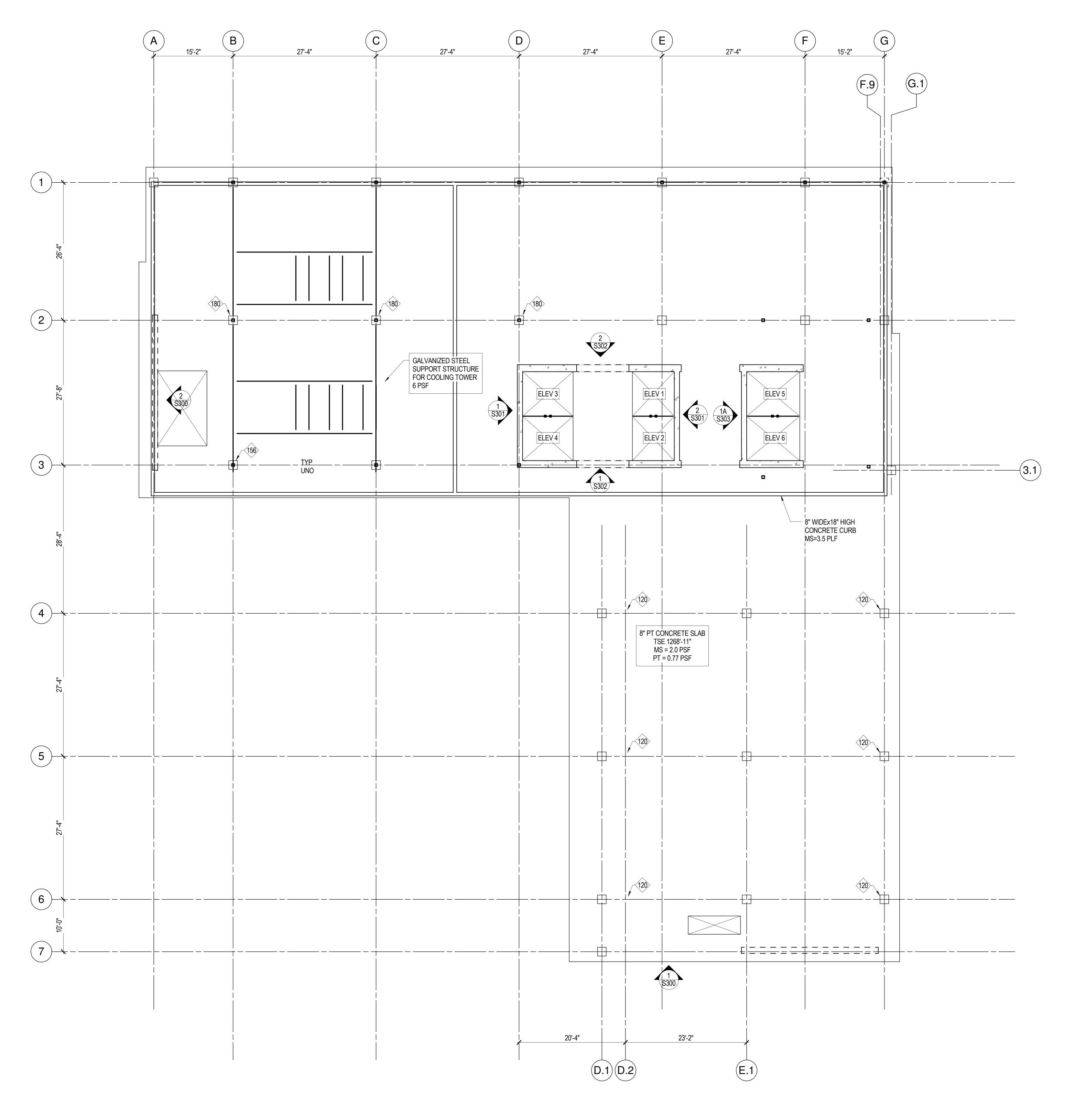


**TYPICAL APARTMENT** (LEVELS 20TH -

22ND) FRAMING PLAN

DATE: DECEMBER 19, 2014 SCHEMATIC DESIGN





23 - TWENTY-THIRD LEVEL/ROOF FRAMING PLAN

1/8" = 1'-0"

#### **SD PRICING NOTES:**

1. POST-TENSIONING AND MILD (NON-PRESTRESSED) STEEL
REINFORCEMENT QUANTITIES FOR PRICING PURPOSES ARE SHOWN ON

2. SLAB QUANTITIES ARE PROVIDED IN POUNDS PER SQUARE FOOT OF SLAB AREA. BEAM QUANTITIES ARE PROVIDED IN POUNDS PER LINEAR FOOT OF BEAM LENGTH.

PT = POST-TENSIONED REINFORCING
MS = MILD (NON-PRESTRESSED) STEEL REINFORCEMENT

3. PT TENDONS AND NON-PRESTRESSED REINFORCING SHOWN ON PLAN ARE TYPICAL CONFIGURATIONS INDICATING PLACEMENT AND STRESSING REQUIREMENTS, ACTUAL CONFIGURATIONS WILL VARY.

4. REINFORCEMENT QUANTITIES INCLUDE ALL PRIMARY REINFORCEMENT AND SUPPLEMENTAL REINFORING INCLUDING HAIRPINS, BACKUP BARS, AND OPENING TRIM BARS. SUPPORT BARS ARE NOT INCLUDED.

5. SEE S520 SEREIS FOR TYPICAL CONCRETE DETAILS INDICATING ANTICIPATED CONFIGURATION AND COMPLEXITY OF TENDON AND REBAR PLACEMENT.





525 South 8th Street Minneapolis, Minnesota 55404 Telephone 612.332.7281

#### MECHANICAL/ PLUMBING ENGINEER

METROPOLITAN MECHANICAL CONTRACTORS, INC 7450 FLYING CLOUD DRIVE EDEN PRAIRIE, MINNESOTA TELEPHONE (952) 941-7010

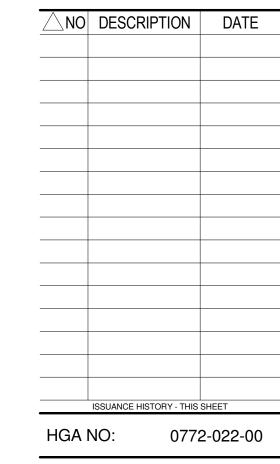
# BROADWAY AT CENTER

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NOT FOR NOT FOR ONSTRUCTION



TWENTY-THIRD LEVEL/ROOF FRAMING PLAN

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#### MECHANICAL/ PLUMBING ENGINEER

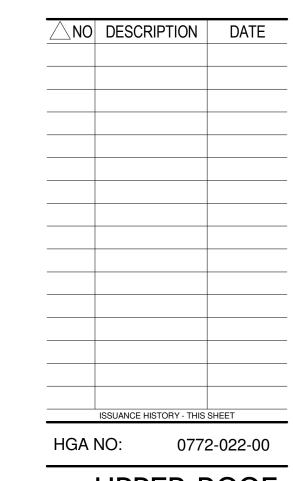
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# **BROADWAY AT CENTER**

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UPPER ROOF LEVEL FRAMING PLAN

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